



DAMES & MOORE

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November 13, 1989

Environmental Protection Agency
RCRA Compliance Section
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

Attention Mr. Michael F. Gearheard:

Addendum Enclosure Building 5
Closure Plan
Columbia Business Center
Vancouver, Washington

RECEIVED
NOV 16 1989
WASTE MANAGEMENT BRANCH

Dear Mr. Gearheard:

This addendum letter is to be attached to the Closure Plan and Cost Estimate for the Waste Disposal Area - Building 5, Columbia Industrial Park, Vancouver, Washington dated October 31, 1988 as agreed to in a meeting with the EPA on October 25, 1989. This addendum incorporates elements of Dames & Moore's letter of Response to EPA Comments, Columbia Industrial Park Closure Plan, Vancouver, Washington (dated May 24, 1989), discussions held with EPA personnel, and a letter from the EPA to MR. Doug Hardesty dated November 3, 1989. This addendum is intended to address all the EPAs concerns with regard to the Closure Plan for Building 5.

The EPA requested changes in the Closure Plan are addressed below and in the attached revised Table 2-1 Waste Disposal Area Closure Cost Estimate.

1. The maximum inventory of hazardous waste can not be determined from the available information. The available records of Cascade Temperings waste disposal practices and production process would not provide meaningful estimates of this volume.
2. A qualified waste transporter will be selected after closure plan acceptance and with consideration of availability and cost. The disposal facility will be determined based on the excavated soils designation. Non-dangerous waste will be disposed locally at a minimum function design landfill such as the Circle C landfill. Dangerous wastes will be disposed of at either CSSI-Arlington or ESI-Idaho.
3. Backfill procedures will be conducted to achieve the goals specified in section 1.5.7 of the Closure Plan. Imported clean fill will be placed and compacted to specifications required for use as a parking and truck loading area.



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4. The area affected by excavation will be barricaded and surrounded by caution tape. the industrial parks 24 hour security service will be alerted to prevent entry to this area.
5. The topography of the affected area is essentially flat lying.
6. Equipment will be decontaminated in a bermed tarp covered area. The waste water will be decanted to a drum as needed and sampled prior to disposal. This will increase sample analysis and materials costs approximately \$450.
7. In response to EPA concerns, a sample was collected from a depth of two feet in grid area A-5 on May 2, 1989. A total lead concentration of 1.7 ppm was determined and demonstrates that the contaminated soil has been removed. Background levels for lead in these soils range from 32 to 135 ppm as described in Section 1.5.2.1 of the Closure Plan. The laboratory report is attached.
- 8-1. In consultation with the WDOE it was decided that monitoring wells would be placed at one upgradient and three downgradient locations. The first wells (CT-2 to CT-4) were located with the concurrence of WDOE representative Joann Chance and designed to monitor the fill material. the second set of wells (AGI-1 to AGI-4) were designed to monitor the sand aquifer. Plate 11 in the AGI report demonstrates that these wells satisfy the one up- and three downgradient criterion. Additionally, this flow direction is reported as dominant at the Frontier Hard Chrome site to the north. Further discussion of the adequacy of the network will be included with clarifications of deficiencies 8-2, 8-4, 8-5 and 8-6.
- 8-2. The lithologic information obtained during the investigation of Frontier Hard Chrome (approximately 1500 feet north of Building 5) indicated that the silty gravel unit is laterally extensive north northeast and west of Building 5. It can be assumed to extend to the east and south as well. At Frontier Hard Chrome, this unit is described as being of relatively low permeability while an overlying silt and clay unit is considered an aquitard. At Building 5, the conditions appear similar because the silty gravel does not perch water in the overlying fill. This unit can, therefore, be considered an aquitard only in a relative sense at this site.
- 8-3. A utility plan for the industrial park has been reviewed. A copy of the relevant section is attached (Figure 1). Water and gas lines are present on the east and west sides of the waste disposal area respectively but do not cross this area directly. Additionally, no evidence of abandoned utilities was noted during the investigations or excavations of affected soils.
- 8-4. Water level measurements taken in shallow wells CT-2 and CT-3 in February 1985, July 1986 and May 1989 (Table 1) all indicate that the fill was not saturated and, therefore, should not be considered the uppermost aquifer. These



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measurements represent wet and dry season water levels all of which are below the described base of the fill.

- 8-5. There is little potential for horizontal contamination migration along the fill/silty gravel contact in that the fill is not saturated. Infiltration and migration of contaminants will be primarily along vertical pathways. Ground water is assumed to be the primary carrier of any contaminants. Additionally, the silt content of the material may retard migration of lead by absorption.
- 8-6. Water levels measured in the sand aquifer at the site on May 2nd 1989 indicate water levels approximately two and a half feet higher than the July, 1986 water levels and a westward gradient. A correlation between aquifer water levels and Columbia River stage is described at Frontier Hard Chrome for this aquifer. River stage is shown to have a dominant effect on aquifer water levels and gradients. However, the predominant slope of the potentiometric surface is reported to be to the south-southeast. The average river stage is highest during May and June which indicates that gradients measured during these months may not define average flow direction and, therefore, contaminant migration direction. The primary contaminant migration direction at the site is considered to be to the south.
- 8-7. The total thickness of the sand aquifer at the site is not known. the alluvial material present in the flood plain of the Columbia River generally contains interbeds, lenses, and mixtures of gravel, sand, silt and clay, this material character is described near the site at Frontier Hard Chrome. Vertical groundwater flow and, therefore, vertical contaminant dispersion within the saturated zone is limited by the layered nature of this material. Additionally, a vertical ground-water gradient which would act to drive water downward was not measured at Frontier Chrome. The ground-water samples to be obtained at the site are, therefore, considered representative of this aquifer.
- 8-8. As discussed in the meeting of October 25, 1989 grab samples of ground water will be collected at two of the sample grid locations C-1 and C-3. Soil samples from each of the three stratigraphic units will also be collected. Samples will be analyzed for Total and EP Toxicity lead and cadmium.

*Mace
Bailey*

The original sample program discussed in section 1.5.3.2 of the Closure Plan is also modified to include the analysis of all grid samples for total and EP Toxicity lead. Ground water from the five existing wells (AGI-1, AGI-2, AGI-3, CT-3, and CT-4) will also be analyzed for lead and cadmium. AGI-4 could not be located due to extensive landscaping around the building and CT-2 has been dry each time it was inspected.



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We understand that following receipt and acceptance of the Closure Plan that a 30 day comment period will begin. Pending the comment response, the Work Plan can be initiated immediately after completion of the comment period.

Should you have any additional concerns, questions, or comments please call Mrs. Christine Wamsley at (206) 693-3644 or Kim Marcus at (503) 228-7688.

Yours very truly,

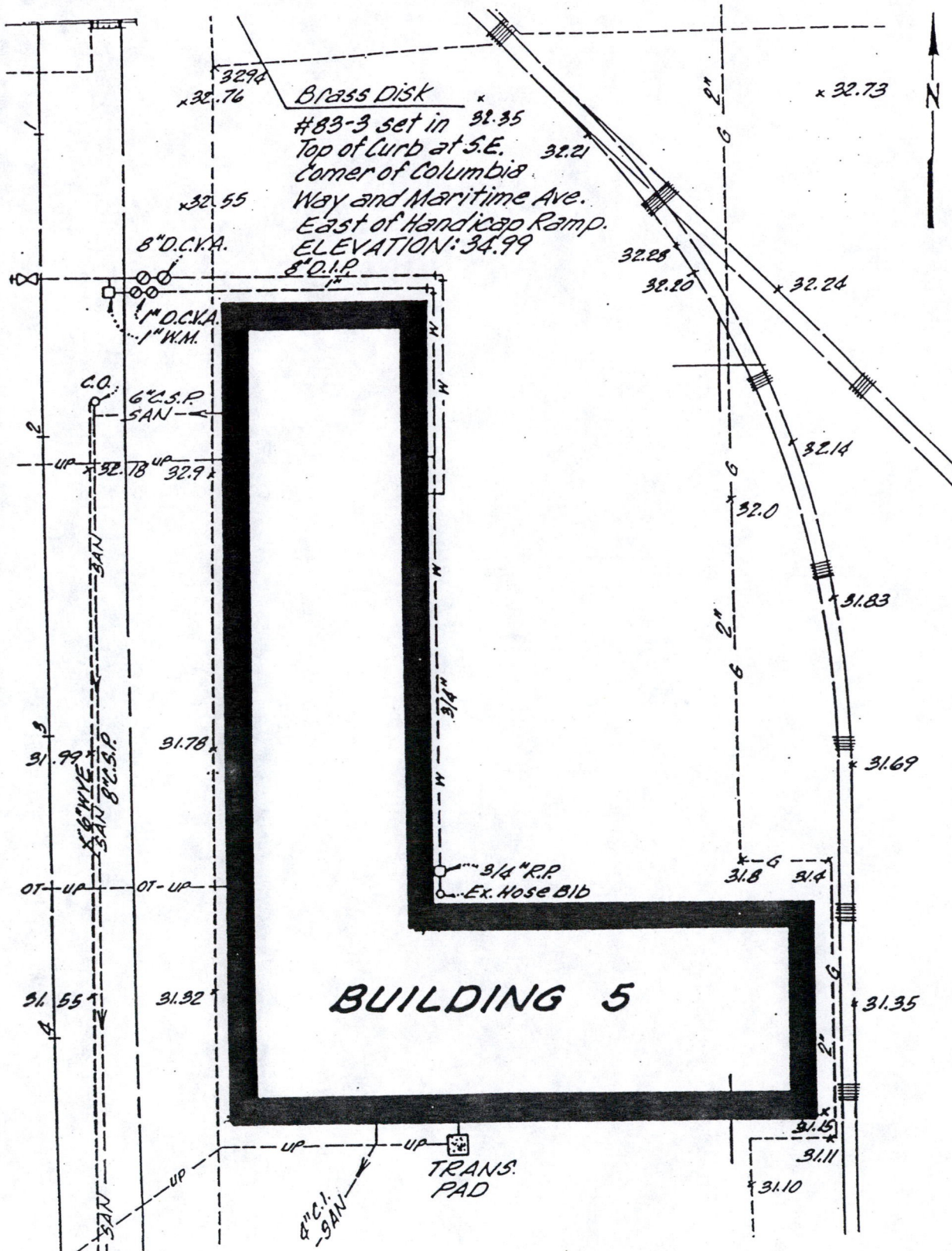
DAMES & MOORE

Kim L. Marcus (2.8)

Kim L. Marcus,
Senior Geologist

A:hillclos
KLM:tb
17008-001-005

cc: Christine Wamsley
Douglas A. Hardesty



UTILITY PLAN
 COLUMBIA INDUSTRIAL PARK,
 BUILDING 5
 WASTE DISPOSAL AREA CLOSURE
 DAMES & MOORE
 MAY 1989

HILLMAN PROPERTIES
VANCOUVER, WASHINGTON
JOB NO: 17809-001

TABLE 1
WATER LEVELS
May 2, 1989

WELL TESTED	TIME	DEPTH to WATER (in feet)	WATER LEVEL ELEVATION*
CT-2	12:38	11.58	14.56
CT-3	12:43	8.42	17.46
CT-4	13:03	21.89	5.33
AGI-1	13:34	22.97	2.36
AGI-2	12:34	23.05	2.33
AGI-3	12:46	22.53	2.27
AGI-4	--	--	--

NOTE: * = Relative to AGI Arbitrary Site Datum